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ABSTRACT

This module on instructional strategies is 1 in a series of 10 modules written for vocational education teacher education programs. It is designed to present two instructional strategies--mapping and flowcharting--that the teacher can apply to accommodate the special needs of students. Introductory materials include the following: a listing of competencies/tasks to be covered, objective, overview of the module, listing of suggested resources, and content/instructional strategies, including prerequisite information. The module consists of two sections. The first section on mapping provides steps to teach this strategy and the three components into which the use of a modified mapping strategy structures text materials: a main topic, a small group of categories, and attributes or facts relating to each category. The second section on flowcharting discusses the three symbols used in flowcharting and how to organize information into a step-by-step progression that breaks down a skill into small sequential components. Components of each section include instructional material, an activity sheet, and evaluation. (YLB)

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MODULE:

Instructional Strategies

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Notes

MODULE : INSTRUCTIONAL STRATEGIES

Competencies/Tasks:

Modify instuctional techniques to meet the needs of students with special needs.

Modify instruction for slower and less capable students.

Objectives:

Instructional strategies allow for improvement in the quality of vocational instruction. These strategies should not require the total revision of a teacher's current program, instead, they should provide the vocational educator with an effective means for teaching thinking or problem solving skills concurrently with teaching information from the content area. This module presents two strategies which allow educators to face the challenge of meeting the individual differences which are often manifested during the teaching process and will accomplish the following tasks:

1. Allow for meeting individual differences through modifiying integrated vocational programs.

2. Systematically vary objectives, activities and time factors involved in the instructional process.

3. Promote integration by presenting instructional strategies which can be applied noncategorically to the vocational classroom.

Upon completion of this module, the teacher educator will be able to apply the following instructional strategies in the vocational classroom to accommodate the special needs of students:

1. Mapping

2. Flow charting

Overview of Module:

Vocational education for special needs students places an emphasis on selecting appropriate instructional strategies in order to meet the needs of this unique population. One way to address this academic issue is to incorporate instructional strategies which not only teach a specific task or skill, but also provide the learner with a strategy which can be applied to various situations. Instructional strategies allow for assistance to be provided across many different vocational settings and can be applied noncategorically to special needs populations. Each of the two instructional strategies included in this module can be introduced and demonstrated within 45-50 minute classroom periods. Further reinforcement of the strategies will be needed in subsequent classes.

Notes

Mapping provides an instructional strategy which allows for the sequential organization of information, placing emphasis on the comprehension and recall of text material. This organization of material supplies the learner with an inter-connected diagram which shows the relationship of concepts through visual representation.

Flow charting utilizes symbols to structure classroom lessons. This sequential clustering of information helps in information recall as well as teaching students how to analyze information and select alternatives.

Suggested Resources:

1. Supplies: Overhead projector, blank transparencies, transparency pen, chalkboard.

2. Assignments: See Activity Page.

3. References:

Alley, G., & Deshler, D. (1979). Teaching the learning disabled adolescent: Strategies and methods. Denver, CO: Love Publishing Company.

Armbruster, B.B., & Anderson, T.H. (1980). The effect of mapping on the free recall of exposition text (Tech. Rep 160). Urbana-Champaign, IL: University of Illinois.

Bauer, R.H. (1979). Memory, acquisition, and category clustering in learning disabilities.Journal of Experimental Psychology, 27, 365-383.

Brown, A.L., & Palincsar. (1982). Inducing strategies learning from texts by means of informed self-control training. Topics in Learning and Learning Disabilities, 2, (1), 1-17.

Frase, L.T. (1969). Paragraph organization of written materials: The influence of conceptual clustering upon the level and organization of recall. Journal of Educational Psychology, 50, 394-401.

Nystron, D.C., Bayne, G.K., & McClellan, L.D. (1977). Instructional methods in occupational education. Indianapolis, IN: Bobbs-Merrill Company, Inc.

Content/Instructional Strategies

Prerequisite Information: None

Notes

Mapping

Introduction:

The acquisition of information from texts requires the ability to comprehend and recall material. The special needs student is often frustrated by their inability to master material because of inadequate reading levels and a paucity of textbook skills which do not allow them to gain information from texts. It therefore becomes necessary to teach students how to locate and utilize information. The use of a modified mapping strategy structures text materials into three components: a main topic, a small group of categories, and attributes or facts relating to each of the categories. While it is not necessary to always have a uniform number of categories and attributes, a consistent pattern during the learning process facilitates acquisition of this skill.

Body of Lesson:

Students should be trained to use this strategy by selecting a 140-160 word sample from their text. While three passages are initially used to teach this strategy, approximately 10-12 training passages will provide sufficient practice for acquiring this skill.

Step 1: Main Topic. Present students with a set of three training passages. After reading the first selection, assist students in selecting the main topic of the passage. Once the main topic has been determined, draw a main topic section of a map on the board or overhead projector (see Diagram 1.) At the same time have the student draw a main topic section on a sheet of paper and place the selected main topic within that topic section. Discussion of how the main topic was selected should identify and clarify any difficulties a student may be experiencing. Independently repeat this process with the remaining two training passages so that each student has a main topic section for each of the three training passages. Again, discussion of the selection of the main topics should take place so that students fully understand the concept of a main topic.

Step 2: Categories. Introduce and discuss the categories found within the first training passage. Add these categories to the main topic section of the map drawn on the board or overhead and instruct students to add this information to their map. After completing this demonstration map, students should complete the category sections of the remaining two training passages. Discussion should again clarify any misunderstandings of the concept of categories.

Step 3: Category Attributes. Again, using the initial training passage, assist students in locating category attributes. These can be underlined and then transferred to the attribute sections of the map on the board and the student's maps. Discussion of the identification of attributes will clarify any misunderstandings of what constitutes an attribute. Repeat this procedure with the two remaining training passages.

Notes

At this point in the training process, a new passage may be given to the students along with a map which contains only the outline with a main topic section and the appropriate number of category and attribute sections. After having the students read the passage and fill in the map, the vocational educator will be able to evaluate the student's proficiency in developing maps. The results of this evaluation will determine the need for further instruction on this strategy.

Summary and Review:

Special needs students may experience difficulty in reading regular classroom material, yet the information contained in the text is important for the student to know. The use of mapping as an instructional alternative supplies the student with an organized design for obtaining information from texts or other reading material. This strategy reduces the amount of material the student is exposed to as well as focuses on the principle concepts and details within the text. It further provides an instructional technique which may facilitate the recall of information because of its visual representation.

Activity Sheet

The instructor should provide the students with three training passages which have been taken from their text. The first of these training passages will be used as a demonstration passage and the two remaining passages should be used by the student to independently develop their maps. The following diagram demonstrates the format of the mapping strategy.

Main Topic

SHEET METAL WORKER		
What They Make	**Work Conditions**	**Classes**
Heating Duct	Dirty	Applied Math
Air Conditioning	Hot and Cold	Drafting/CAD
Electrical Boxes	8 - 5	Metal Technology
Shelves	Power Tools	Welding
Kitchen Equipment	Hazardous Danger	Wood Technology

"Diagram 1"

Evaluation

The appropriate evaluation of the mapping strategy can provide the vocational educator with information as to the effectiveness of the strategy. The two independently developed maps should be evaluated during the training process. Additional maps may be developed during classroom instruction and as homework assignments.

Further evaluation of the effectiveness of this strategy will evidence itself in exam scores as students increase their ability to recall important concepts and details outlined by the map.

To evaluate the understanding of this strategy, a text passage should be provided and the students should be instructed to develop a map. This process should be repeated until the student can successfully identify the three sections of the mapping strategy.

Notes

Flowcharting

Introduction:

Flow charting represents another alternative instructional strategy which facilitates student achievement in vocational classrooms. Flow charting sequentially organizes information in a step by step progression which breaks down a skill into small sequential components which can be followed through to completion of the task.

Flow charting utilizes three symbols:

1. **Ovals** which start and stop the activity

2. **Rectangles** within which actions are designated

3. **Diamonds** which pose questions and/or require decisions for further actions

These symbols are connected with arrowed lines designating directions which will aide the student through the progression of the flow chart

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Body of Lesson:

To assist in the use of the flow charting strategy, the following six steps should be incorporated in the training sessions.

Step 1: The three symbols which are employed throughout the flow chart should be introduced, discussed and/or demonstrated to students.

Step 2: The directional arrows which direct the progression of the activity should be taught and specific consideration should be given to arrows which emerge from questions within the flow chart when the question is answered "no."

Step 3: The vocational educator should supervise the students in the development of a class flow chart on the chalkboard or overhead transparency, giving particular emphasis to the use of the symbols and directional arrows.

Step 4: Students should be given the opportunity to individually develop flow charts through the implementation of an assigned topic or a student selected topic.

Step 5: Students should be presented with a teacher-developed flow chart and a review quiz which focuses on the procedure implemented with the flow chart strategy. This allows the vocational educator to evaluate the student's expertise in "reading" a developed flow chart.

Step 6: The development of a posttest for flow charting will help in the evaluation of the student's ability to construct a flow chart.

Notes

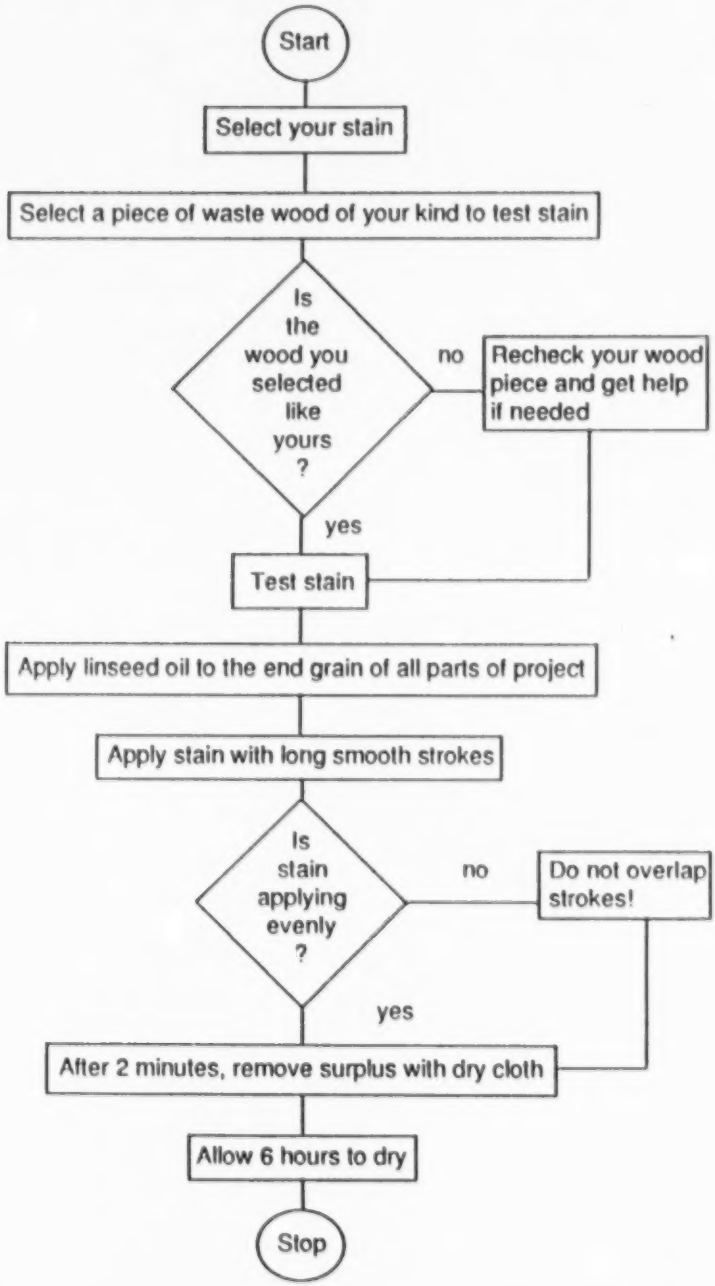
Summary and Review:

Flow charting is best practiced in the vocational classroom during actual classroom activities. Teacher-developed flow charts will provide students with a step-by-step progression which may decrease the need for teacher intervention during classroom activities. Once students are familiar with the flow charting strategy, they may develop flow charts for study purposes or as a method of evaluation of the student's understanding of an assigned task. This strategy affords students an alternative for organizing sequential information presented in texts. The sections or subheading of texts may be incorporated into a flow chart.

This strategy will help instructors plan daily classroom activities by providing students with clear and concise directions. It is an aid to many special needs students as it allows for the individualization of classroom material by increasing or decreasing the number of steps necessary to complete the activity. The charts provide the educator and students with a reusable aide which, if necessary, can be enlarged for classroom display to assist all students in the classroom.

Activity Sheet

Sample Flow Chart
How To Apply Wood Stains


Start
Select your stain
Select a piece of waste wood of your kind to test stain
Is the wood you selected like yours ?
no
Recheck your wood piece and get help if needed
yes
Test stain
Apply linseed oil to the end grain of all parts of project
Apply stain with long smooth strokes
Is stain applying evenly ?
no
Do not overlap strokes!
yes
After 2 minutes, remove surplus with dry cloth
Allow 6 hours to dry
Stop

Taken from: Units in Woodworking, Delmar Publishing, 1967, p. 162

Notes

Evaluation Form

Flow Chart Training Evaluation

Student Name _____

Class _____

Date _____

1. Knows symbols _____
2. Understands directional arrows _____%
3. Can draw a simple flow chart Yes_____ No____
4. Can follow an 8-step flow chart (quiz score) _____%